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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/903,215	07/11/2001	Sergio Diaz De Leon	PGI6044P0181US	9964

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WOOD, PHILLIPS, KATZ, CLARK & MORTIMER  
500 W. MADISON STREET  
SUITE 3800  
CHICAGO, IL 60661

EXAMINER

BOYD, JENNIFER A

ART UNIT

PAPER NUMBER

1771

DATE MAILED: 05/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/903,215

Applicant(s)

DE LEON ET AL.

Examiner

Jennifer A Boyd

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 February 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 and 24-30 is/are pending in the application.
- 4a) Of the above claim(s) 1-11 and 25-30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 12-21 and 24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Response to Amendment***

1. The Applicant's Amendments and Accompanying Remarks, filed February 12, 2004, have been entered and have been carefully considered. Claims 22 and 23 are cancelled, claims 1 – 11 and 25 – 30 are withdrawn and claims 12 – 21 and 24 are pending. In view of Applicant's Amendments, the Examiner withdraws all previously set forth 35 U.S.C. 112 rejections as detailed in paragraphs 8 – 9 as set forth in the previous Office Action dated September 23, 2003. In view of the Applicant's Arguments that Welch fails to teach or suggest the formation of a fabric construct having upstanding projections by means of a three-dimensional image transfer device, the Examiner withdraws all the previously set forth rejections as detailed in paragraphs 10 – 11 of the previous Office Action dated September 23, 2003. Despite these advances, the invention as currently claimed is not found to be patentable for reasons herein below.

***Election/Restrictions***

2. Applicant's election with traverse of claims 12 – 24 (Group II) in the previous Office Action dated September 23, 2003 is acknowledged. The traversal is on the ground(s) that Groups I, II and III are sufficiently closely related as to permit their consideration in a single application. This is not found persuasive because the intermediate product of Group I could be used to make another final product such as a filtering material. Additionally, the final product of Group II could be made by pattern bonding, air bonding or ultrasonic bonding. The requirement is still deemed proper and is therefore made FINAL.

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3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

***Claim Rejections - 35 USC § 103***

4. Claims 12 – 21 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Welch et al. (US 6,022,818) in view of Black et al. (US 6,502,288).

Welch is directed to hydroentangled nonwoven composites (Title) useful as a fluid management component in personal care absorbent articles such as diapers, training pants, incontinence garments, feminine hygiene products, bandages, wipes and the like (column 1, lines 10 – 23).

As to claims 12 and 19, Welch teaches a composite as shown in Figure 2. Welch teaches that the composite comprises three layers: top sheet 102, bottom sheet 104 and second top sheet 105 (column 5, lines 35 – 40). The Examiner equates second top sheet to Applicant's "first fibrous layer" and "liquid-acceptance layer", the top sheet to Applicant's "second fibrous layer" and "liquid-distribution layer" and bottom sheet to Applicant's "third fibrous layer". Welch teaches that the second top sheet, or "first fibrous layer", contains essentially matrix fibers (column 5, lines 55 – 60). Welch teaches that the matrix fibers can comprise staple or continuous fibers made from rayon, polyolefins and polyesters (column 2, lines 48 – 55). Welch teaches that the top sheet, or "second fibrous layer", comprises two regions: region 106 and region 108 (See Figure 2). Welch teaches that region 106 comprises essentially matrix fibers and region 108 comprises a mixture of absorbent fibers and nonwoven matrix fibers (column 5, lines 50 – 60). Welch notes that the matrix fibers may include several types of

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fibers such as blends of polyolefins and polyester fibers (column 2, lines 48 – 55). The Examiner equates the matrix fibers to Applicant's "fibers" of the "first fibrous layer". Welchel additionally notes that the top sheet, or "second fibrous layer", can comprise bicomponent matrix fibers so that they can be subjected to a heating process to bond the top sheet and bottom sheet together (column 5, lines 40 – 50). The Examiner equates the matrix fibers to Applicants "(1) fibers" and the bicomponent matrix fibers to Applicant's "(2) heat-fusible fiber". Welchel teaches that the composite can be hydraulic entangled (column 8, lines 15 – 35).

As to claim 13, Welchel teaches that the bottom sheet, or Applicant's "third fibrous layer" and "liquid-retention layer", comprises a layer of absorbent fibers (column 5, lines 40 – 45). Welchel teaches that the absorbent fibers comprise wood pulp fibers and rayon (column 4, lines 35 – 45).

As to claim 14, Welchel teaches that the bottom sheet, or Applicant's "third fibrous layer" and "liquid-retention layer", comprises greater than or equal about 90 percent absorbent fibers (column 4, lines 65 – 69 and column 5, lines 1 – 10). Therefore, Welchel teaches that 0 – 10% of the bottom sheet can comprise matrix fibers such as rayon, polyolefins and polyesters (column 5, lines 50 – 60).

As to claims 15 – 16 and 20 – 21, Welchel teaches that the bottom sheet, or Applicant's "third fibrous layer" and "liquid-retention layer", can comprise, in addition to the absorbent fibers, superabsorbents (column 3, lines 35 – 40). Welchel notes that the superabsorbent materials may be added to the composite fabric before the fluid-jet treatments and should remain inactive during the water-jet treatment and activated at a later time (column 9, lines 35 – 45).

As to claims 17 and 24, Welch teaches that the composite fabric may be brushed to provide a uniform exterior appearance and/or certain tactile properties (column 9, lines 20 – 30).

As to claim 18, it should be noted that upon hydroentanglement by nature, a plurality of apertures will be formed in the composite.

As to claims 12 and 19, Welch fails to teach the precursor web is positioned on a three-dimensional image transfer device having a foraminous forming surface defining an array of surface depressions and hydroentangling the web so that the web is imaged and patterned on the image transfer device. Welch fails to teach that the fabric as a result will have an array of upstanding projections extending above a network of liquid-accepting channels corresponding to the array of surface depressions defined by a foraminous forming surface.

Black et al. is directed to imaged nonwoven fabrics (Title) useful in a wide variety of consumer applications (column 1, lines 10 – 15). Black teaches a method of forming a nonwoven fabric which exhibits enhanced physical characteristics which are achieved through enhanced imaging and patterning on a three-dimensional image transfer device (column 2, lines 55 – 65). In particular, the fabric is formed from a precursor web which is subjected to hydroentanglement on a movable imaging surface of the three-dimensional image transfer device (column 2, lines 55 – 65). As a result, enhanced z-direction entanglement is achieved on the surface of the fabric (column 6, lines 25 – 30).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to create a patterned image on the surface of composite of Welch with the three-

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dimensional image transfer device of Welchel motivated by the desire to create a patterned nonwoven composite with enhanced physical characteristics.

As to claims 12, 14 and 19, Welchel in view of Black discloses the claimed invention except for that the first fibrous layer has a basis weight of about 0.5 to 1.5 ounces per square yard, the second fibrous layer has a fiber denier of about 6 to 18 and the second fibrous layer has a basis weight of about 0.5 to 1.0 ounces per square yard as required by claim 12, the third fibrous layer has a denier of about 6 to 18 as required by claim 14 and the patterned nonwoven has an absorbent capacity, as a percentage of fabric weight to thickness ratio of at least 6.7 as required by claim 19. It should be noted that the fiber denier, basis weight and absorbency capacity as a percentage of fabric weight to thickness ratio are a result effective variable. For example, as the fiber denier decreases, the nonwoven becomes softer but less durable. As the basis weight increases, the nonwoven becomes stronger but less pliable and soft. As the fabric weight to thickness ratio increases, the fabric becomes heavier and more pliable. It would have been obvious to one having ordinary skill in the art at the time the invention was made to optimize the first fibrous layer having basis weight of about 0.5 to 1.5 ounces per square yard, the second fibrous layer has a fiber denier of about 6 to 18 and the second fibrous layer has a basis weight of about 0.5 to 1.0 ounces per square yard as required by claim 12, the third fibrous layer has a denier of about 6 to 18 as required by claim 14 and the patterned nonwoven has an absorbent capacity, as a percentage of fabric weight to thickness ratio of at least 6.7 as required by claim 19 since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215

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(CCPA 1980). In the present invention, one would have been motivated to optimize the denier, basis weight and the fabric weight to thickness ratio to create an appropriately soft, pliable and strong nonwoven composite.

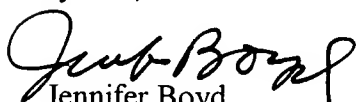
***Response to Arguments***


5. Applicant's arguments with respect to claims 12 – 21 and 24 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A Boyd whose telephone number is 571-272-1473. The examiner can normally be reached on Monday thru Friday (8:30am - 6:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on 571-272-1478. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Jennifer Boyd  
April 30, 2004

  
**Ula C. Ruddock**  
Primary Examiner  
Tech Center 1700